

The Editor would again call attention to the principle laid down by him in discussing this subject in his *Treatise on Meteorological Apparatus and Methods*, viz, that evaporation as measured by any form of apparatus thus far devised corresponds to artificial conditions so far removed from nature that it can at best give only a crude representation of the actual natural evaporation by which moisture is thrown into the atmosphere from the ocean, the lakes, and the land. The true method of treating evaporimeters of all kinds within instrument shelters is to consider them as integrating hygrometers. For such exposures, the total evaporation during an hour, or a day, is a simple result of the temperature, the wind, and the dryness. Knowing the two former and the measured evaporation, we may compute the average dryness. This average dryness is a much more important datum to the meteorologist than is the measured evaporation to the climatologist. Of course, hydraulic and irrigation engineers need to know the loss of water by evaporation, but in nature this is so mixed up with seepage, leakage, and consumption by animals and plants that our meteorological data are of comparatively little importance. For the agricultural engineer the lysimeter and Symon's evaporimeter, six feet square, are essential apparatus, but for the meteorologist an integrating hygrometer, such as the Piche evaporimeter really is, is the important instrument. The meteorologist takes the atmosphere as it is, without necessarily concerning himself as to where the moisture comes from, and then tries to follow the air and vapor in all their kaleidoscopic changes.

THE ASSOCIATIONS OF TEACHERS OF PHYSICS AND MATHEMATICS.

Under the leadership of enthusiastic teachers in the universities and colleges, the teachers in normal schools, high schools, and academies are being organized into associations for mutual improvement. Three such associations are known to the Editor, viz, the Eastern Association, meeting usually in New England; the Middle States Association, meeting usually in New York or New Jersey; and the Central Association of Science and Mathematics Teachers, meeting usually in Chicago. Probably others also exist.

In all these associations the teaching of meteorology has received more or less attention and we commend the importance of such associations to the attention of those officials of the Weather Bureau who are interested in education.

The addresses of J. W. Smith, R. DeC. Ward, and William M. Davis before the Eastern Association on Saturday, May 20, 1905, and the addresses of Prof. H. J. Cox and the Editor before the Central Association on November 24, 1904, illustrate the importance of availing ourselves of these opportunities to further the meteorological propaganda.

WEATHER BUREAU MEN AS EDUCATORS.

Mr. Alfred F. Sims, Local Forecaster, Albany, N. Y., reports a visit from the class in physical geography of St. Agnes School, to which he gave instruction in the use of Weather Bureau instruments on April 27.

Mr. J. B. Marbury, Local Forecaster, Atlanta, Ga., reports that on June 10 the office of the Weather Bureau was visited by about forty members of the local Young Men's Christian Association to whom he gave a lecture on the work of the Weather Bureau which it is believed will lead to a more general appreciation of the service.

Mr. J. W. Smith, District Forecaster, Boston, Mass., reports that on May 20 he gave an address to the Eastern Association of Physics Teachers, and on the same date he also delivered a lecture to a class from Harvard University, and on June 3 to a class from the Mechanic Arts High School. In each of these ad-

resses he explained the organization, the work, and the beneficial results of the Weather Bureau. The lectures were given at the local Weather Bureau office.

Mr. David Cuthbertson, Local Forecaster, Buffalo, N. Y., reports that during May three classes from the public schools visited the office and received instruction in the rudiments of elementary meteorology.

Professor H. J. Cox, Chicago, Ill., under date of April 28, reports:

A committee, of which I am chairman, consisting of six members of the Geographic Society of Chicago, was recently appointed to prepare a bulletin on the teaching of meteorology, which is to be published by the society. Five members are teachers actively engaged in instruction in meteorology and physiography, among whom are Professor Goode and Mr. Barrows of the University of Chicago. It is believed that the work of the committee will afford great assistance to all engaged in teaching meteorology, and should meet with the cooperation of the Weather Bureau. It is the plan of the committee to supply lantern slides to teachers at actual cost (about \$3 per dozen). The following outline shows the subjects that the committee expects to illustrate, and the person to whom each subject is entrusted:

METEOROLOGY.

1. The atmosphere.—General considerations.
Illustrations of meteorological instruments.—Mr. Cox.
2. Temperature.
Illustrations: Charts of isotherms and other [charts of] heat distribution.—Miss Smith.
3. Air pressure and circulation.
Illustrations: Graphs of pressure records and wind records.
Diagrams for vertical circulation and meridional charts of circulations.—General.
Graphs of adiabatic vertical temperature gradient, and actual temperature gradient.
Charts of moonsoons.—Mr. Everly.
Weather maps of United States, etc.; cyclones, tornadoes, etc.—Mr. Cox, Mr. Goode.
Pictures of storm destruction, etc.; thunderstorms, etc.—Mr. Cox.
4. Moisture.
Illustrations: Graphs of moisture range.
Cloud forms (photographs).
Graphs of rainfall by months.
Charts of rainfall distribution.
Graphs on hail formation.
Photographs of hail or damage by hail.—Mr. Wilder.
Snow crystals, and frost scenes.
Snowscapes; sea ice.
Charts of humidity and evaporation.—Miss Smith.
5. Optics and electricity.
Illustrations: Mirage, coronæ, halos, rainbows, etc.; aurora borealis; lightning.—Mr. Barrows.
6. Climate.
Charts of United States and other regions.—Mr. Goode, Mr. Cox.

Under date of May 19 Professor Cox reports a lecture delivered May 5 before the Press Club of Chicago, and an address on May 12 before the Harmony Guild for the benefit of the charities of that organization. Both lectures were of a popular character and were highly appreciated.

Mr. W. P. Stewart, Assistant Observer, Escanaba, Mich., reports that on June 8 a class in physical geography from the Escanaba High School visited the office and were instructed in the use of instruments and maps, and methods of weather prediction.

Mr. D. S. Landis, Assistant Observer, Fort Worth, Tex., reports that during April two lectures were given to and visits received from scholars in the eighth and ninth grades in the High School.

Mr. B. L. Waldron, Observer, Hannibal, Mo., reports that the Principal with the senior class of the West School visited the Weather Bureau office on May 10 and were given a lecture on the construction and use of instruments, forecasting, and